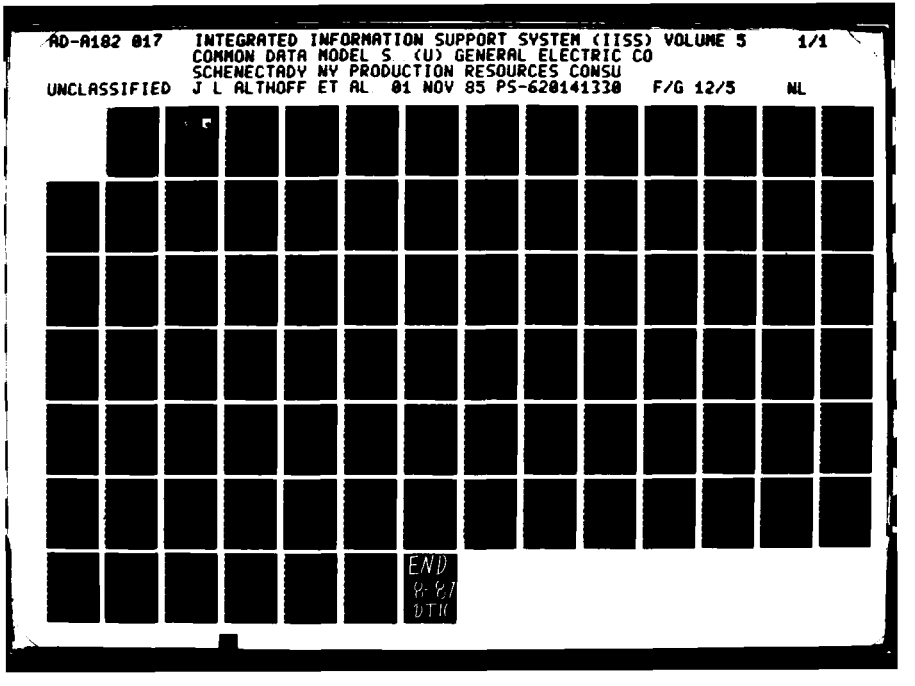
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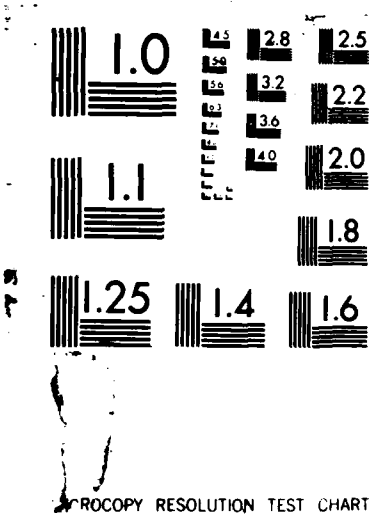
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Volume V
Part 31

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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 31 - File Utilities Product Specification

General Electric Company
Production Resources Consulting
One River Road
Schenectady, New York 12345

Final Report for Period 22 September 1980 - 31 July 1985

November 1985

Approved for public release; distribution is unlimited.

MATERIALS LABORATORY
AIR FORCE WRIGHT AERONAUTICAL LABORATORIES
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AFB, OH 45433-6533

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This technical report has been reviewed and is approved for publication.

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5 Aug 1986
DATE

FOR THE COMMANDER:

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7 Aug 86
DATE

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19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This document is the product specification establishing the design implementation of the IISS Configuration Item File Utilities which provide file transfer, file delete and unique file naming services to other components of IISS.

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Vol V - Common Data Model Subsystem
Part 31 - File Utilities Product Specification

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PREFACE

This product specification covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Alan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

TASK 4.2

Subcontractors	Role
Boeing Military Aircraft Company (BMAC)	Reviewer.
D. Appleton Company (DACOM)	Responsible for IDEF support, state-of-the-art literature search.
General Dynamics/ Ft. Worth	Responsible for factory view function and information models.

Subcontractors	Role
Illinois Institute of Technology	Responsible for factory view function research (IITRI) and information models of small and medium-size business.
North American Rockwell	Reviewer.
Northrop Corporation	Responsible for factory view function and information models.
Pritsker and Associates	Responsible for IDEF2 support.
SofTech	Responsible for IDEF0 support.

TASKS 4.3 - 4.9 (TEST BED)

Subcontractors	Role
Boeing Military Aircraft Company (BMAC)	Responsible for consultation on applications of the technology and on IBM computer technology.
Computer Technology Associates (CTA)	Assisted in the areas of communications systems, system design and integration methodology, and design of the Network Transaction Manager.
Control Data Corporation (CDC)	Responsible for the Common Data Model (CDM) implementation and part of the CDM design (shared with DACOM).
D. Appleton Company (DACOM)	Responsible for the overall CDM Subsystem design integration and test plan, as well as part of the design of the CDM (shared with CDC). DACOM also developed the Integration Methodology and did the schema mappings for the Application Subsystems.

Subcontractors	Role
Digital Equipment Corporation (DEC)	Consulting and support of the performance testing and on DEC software and computer systems operation.
McDonnell Douglas Automation Company (McAuto)	Responsible for the support and enhancements to the Network Transaction Manager Subsystem during 1984/1985 period.
On-Line Software International (OSI)	Responsible for programming the Communications Subsystem on the IBM and for consulting on the IBM.
Rath and Strong Systems Products (RSSP) (In 1985 became McCormack & Dodge)	Responsible for assistance in the implementation and use of the MRP II package (PIOS) that they supplied.
SofTech, Inc.	Responsible for the design and implementation of the Network Transaction Manager (NTM) in 1981/1984 period.
Software Performance Engineering (SPE)	Responsible for directing the work on performance evaluation and analysis.
Structural Dynamics Research Corporation (SDRC)	Responsible for the User Interface and Virtual Terminal Interface Subsystems.

Other prime contractors under other projects who have contributed to Test Bed Technology, their contributing activities and responsible projects are as follows:

Contractors	ICAM Project	Contributing Activities
Boeing Military Aircraft Company (BMAC)	1701, 2201, 2202	Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center (ISMC).

Contractors	ICAM Project	Contributing Activities
Control Data Corporation (CDC)	1502, 1701	IISS enhancements to Common Data Model Processor (CDMP).
D. Appleton Company (DACOM)	1502	IISS enhancements to Integration Methodology.
General Electric	1502	Operation of the Test Bed and communications equipment.
Hughes Aircraft Company (HAC)	1701	Test Bed enhancements.
Structural Dynamics Research Corporation (SDRC)	1502, 1701, 1703	IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI).
Systran	1502	Test Bed enhancements. Operation of Test Bed.

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SECTION 1

SCOPE

1.1 Identification

This specification establishes the design of the "File Utilities Function", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM Program Office. This CI constitutes one of the subsystems of the Common Data Model Processor (CDMP).

1.2 Functional Summary

The purpose of this Computer Program Configuration Item (CPCI) is to provide file handling capabilities to modules of the CDMP for file create, open, naming, close, delete, send and receive.

The following functions will be performed by the file utilities CPCI by these modules:

1. The module CDDV1 will open, close and delete a file when called. This module uses a FORTRAN subroutine to do the file manipulation.

2. The module CDFO1 will provide a unique name for a file when given a host name. These files are used as temporary results files from query processors, aggregators, and conceptual to external transformers.

3. The module CDRF1 will provide a receive file function when given a file by the file send function (CDSF1). It receives file characteristics and instructions and returns file completion information.

4. The module CDSF1 provides a file send function. This function transfers files from host to host by receiving file characteristics and operating instructions. This module passes control to the file receive function (CDRF1).

SECTION 2

DOCUMENTS

2.1 Reference Documents

1. ICAM Documentation Standards: IDS15012000A, 28 December 1981.

2. D. Appleton Co., CDM Administrators Manual: UM620141000, March 1984.

3. D. Appleton, Co., CDM1-IDEF, Model of the Common Data Model; CCS620141000, 15 May 1985.

4. D. Appleton Co., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDML Precompiler; DS620141200, October 1984.

5. D. Appleton Co., Embedded NDML Programmer's Reference Manual: PRM620141200, March 1985.

6. Softech, Inc., NTM Programmer's Guide: UM620140001, July 1984.

7. Control Data Corporation, Computer Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDDL Command Processor: DS620141100, June 1985.

2.2 Terms and Abbreviations

Attribute Use Class: (AUC)

Conceptual Schema: (CS)

Common Data Model Processor: (CDMP)

Common Data Model: (CDM) Describes common data application process formats, form definitions, etc, of the IISS and includes conceptual schema, external, internal schemas, and schema transformation operators.

Data Field: (DF) An element of data in the external schema. It is by this name that an NDML programmer references

data.

Database Management System: (DBMS)

Distributed Request Supervisor: (DRS) This IISS CDM subsystem configuration item controls the execution of distributed NDML queries and non distributed updates.

Domain: A logical definition of legal attribute class values.

Domain Constraint: Predicate that applies to a single domain.

External Schema: (ES)

Forms: Structured views which may be imposed on windows or other forms. A form is composed of fields where each field is a form, item, or window.

Forms Processor: (FP) A set of callable execution time routines available to an application program for form processing.

Internal Schema: (IS)

Integrated Information Support System: (IISS) A test computing environment used to investigate, demonstrate and test the concepts of information management and information integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous databases supported by heterogeneous computers interconnected via a local Area Network.

Mapping: The correspondence of independent objects in two schemas: ES to CS or CS to IS.

Network Transaction Manager: (NTM) Performs the coordination, communication and housekeeping functions required to integrate the application processes and system services resident on the various hosts into a cohesive system.

Neutral Data Manipulation Language: (NDML) A language developed by the IISS project to provide uniform access to common data, regardless of database manager or distribution criteria. It provides distributed retrieved and single node updates.

ORACLE: Relational DBMS based on the SQL (Structured Query Language, a product of ORACLE Corp, Menlo Park, CA). The CDM is an ORACLE database.

Parcel: A sequential file containing sections source code of the input application program.

Request Processor: (RP) A COBOL program that will satisfy a retrieval or update NDML subtransaction against a particular Database Management System.

User Interface: (UI) Controls the user's terminal and interfaces with the rest of the system.

Virtual Terminal Interface: (VTI) Performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by UI software which constitutes the Virtual Terminal Definition. Specific terminals are then mapped against the Virtual Terminal software by specific software modules written for each type of real terminal supported.

SECTION 3

REQUIREMENTS

3.1 Structural Description

The graphic portrayal of this CPCI is included in Section 3.10. This chart shows the hierarchial relationship of each module making up this CPCI.

1. CDDV1 (OPEN, CLOSE, DELETE function) modules

   Delete the named file (FDELET).

2. CDFO1 (FILE NAMER function) modules

   These modules have no subordinate.

3. CDRF1 (FILE RECEIVE FUNCTION) modules

   Receive routine for file receive utility (RCVDAT).
   Generalized interface to the file name queue server (GENFIL).
   File open routine for file receive utility (RCVOPN).
   Closes files for the file receive utility (RCVCLS).

4. CDSF1 (FILE SEND FUNCTION) modules

   Reading the file unit 30 into buffer (SNDDAT).
   Open file "Filenam" and set file unit to 30 (SNDOPN).
   Close file unit 30 (SNDCLS).

3.2 Functional Flow

This CPCI implementes the logic defined in the Development Specification for this CPCI. Details of inputs/outputs and relationships between modules are found in Section 3.10.

This CPCI has been designated to operate in a batch or interactive mode. It must operate in the system environment established for IISS; that is, the Network Transaction Manager, the commmunications and the CDMP. Currently, on the module CDFO1 (File Namer) has a VAX dependency. This is due to the module creating only VAX file names.

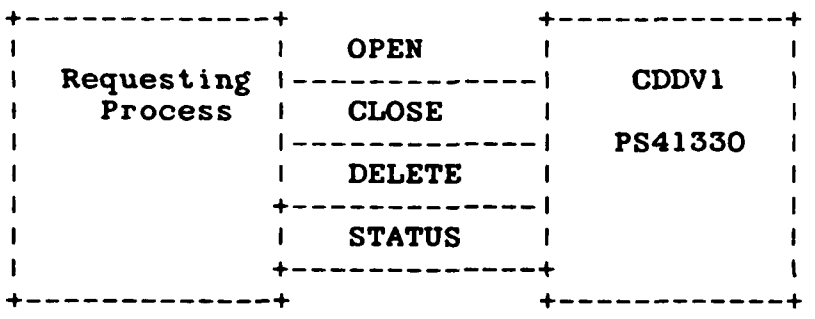
3.3 Interfaces

The diagrams in Section 3.3.1 depict the interface of File Utilities with other CPCI's.

3.3.1 Inputs/Outputs

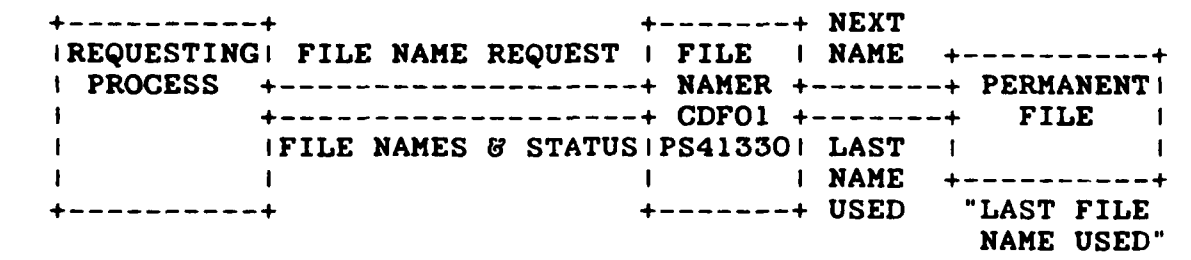
The following information depicts the inputs and outputs of each module in this CPCI.

MODULE: CDDV1



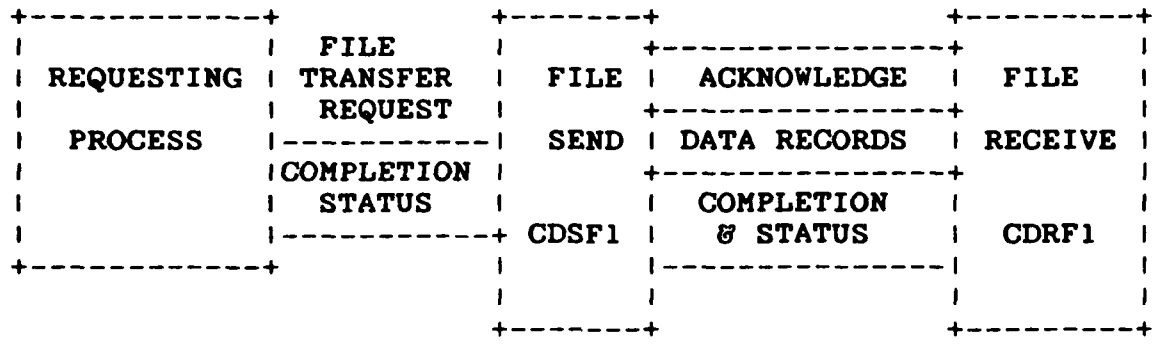
The file manipulation module, CDDV1, receives a request to open, close, or delete a file from a requesting process.

MODULE: CDF01



A requesting process sends File Name request in the form of a message to the File Name queue server. After generating the next group of names, the File Namer sends a reply message with a status to the requesting process. The file "LAST FILE NAME USED" is assigned for each host.

MODULE: CDRF1 & CDSF1



The File Transfer CI is composed of two functional components, File Send and File Receive.

A requesting process sends a File Transfer message to the File Send at the host where the original file to be transmitted resides. The File Send then sends an initiation message to the File Receive at the host where the file is to be created. After receiving acknowledgement from File Receive the File Send reads the source file and creates messages containing the file data. It transmits these messages to the File Receive where they are reconstructed into a new file. When the file transfer is completed, File Send notifies the requesting process.

3.4 Program Interrupts

Not applicable to this CPCI.

3.5 Timing and Sequencing Description

This CPCI is activated for each file called for by any module or subsystem under the common data model processor (CDMP). The modules under this CPCI are activated individually by the requesting processes.

3.6 Special Control Features

Not applicable to this CPCI.

3.7 Storage Allocation

3.7.1 Database Definition

Not applicable to this CPCI.

3.7.1.1 File Description

One permanent file has been defined for this CPCI. This file is used by the file namer "CDF01" as the "LAST FILE NAME USED" This file is used to periodically record the last file name assigned to each host. It may also use temporary scratch files for such things as input and results.

3.7.1.2 Table Description

All tables used by this CPCI have been defined by the Development Specification for this CPCI.

3.7.1.3 Item Description

Not applicable to this CPCI.

3.8 Object Code Creation

The object code for this CPCI will be created by the system integration team using defined IISS Software Configuration Management procedures. This CPCI will use the COBOL and FORTRAN language compilers.

3.9 Adaptation Data

This CPCI has been using ANSI COBOL and FORTRAN languages. The intent was to provide a transportable system. Any system environment supporting these languages, a virtual memory management schema, the COMM and NTM subsystems of IISS and the ORACLE Database Management System should be able to support this CPCI. Every possible attempt has been made to localize and identify any machine or environment dependent modules through the original design of the IISS and application of Configuration Management Procedures.

3.10 Detail Design Description

The following sections have been computer generated for this CPCI.

3.10.1 Main Program List

The following is a list of all "Main Programs" which are modules that are not called by any other module being documented here. These modules are either program entry points or, if they are hooked into another set of programs via subroutine calls, they are the points the external programs can call and therefore enter through. To differentiate between the two types of entry points, look at the individual Module Documentation (section 3.10.8) and look at Module Type for each of the Main Program modules listed. Note whether the routine is a Program, Subroutine, or Function. If it is a Program, it is truly a main program entry point. If not, then it is merely called by other programs not being documented here.

FILE UTILITIES Main Program List

Module Name	Purpose
CDDV1	OPEN CLOSES AND DELETES FILES
CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
CDRF1	FILE RECEIVE FUNCTION
CDSF1	FILE SEND FUNCTION
DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.

3.10.2 Module List

The following is a list of all the modules being documented here along with their purpose. Each module has a unique name, no matter what language it was written in.

FILE UTILITIES Module List

Module Name	Purpose
CDDV1	OPEN CLOSES AND DELETES FILES
CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
CDRF1	FILE RECEIVE FUNCTION
CDSF1	FILE SEND FUNCTION
DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
FDELET	DELETE THE NAMED FILE
FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
RCVCLS	CLOSES FILES FOR THE FILE RECEIVE UTILITY
RCVDAT	RECEIVE ROUITNE FOR FILE RECEVIE UTILITY
RCVOPN	FILE OPEN ROUTINE FOR FILE RECEIVE UTILITY
SNDCLS	CLOSE FILE UNIT 30
SNDDAT	READING THE FILE UNIT 30 INTO BUFFER
SNDOPN	OPEN FILE "FILNAM" AND SET FILE UNIT TO 30

3.10.3 External Routines List

The following is a list of all routines or functions not documented here that are called by modules that are documented here. The first caller, in alphabetical order, is listed as well. The specification in which any module is documented may be found in the Module Documentation Index (Document Number CM 620100001). See section 3.10.6 for a list of the modules that call each of these external routines.

FILE UTILITIES External Routines List

Module Name	First User
CDFUNC	CDSF1
ERRPRO	GENFIL
FOR$CLOSE	FDELET
FOR$OPEN	SNDOPN
INITAL	CDSF1
INITEX	CDFSU
ISEND	CDSF1
NSEND	GENFIL
QSEND	CDFO1
RCV	CDFO1
SIGERR	CDRF1
TRMNAT	CDRF1

3.10.4 Include File List

The following is a list of all include files called in by modules being documented here. Each include file has a unique name regardless of the language being used. The purpose of each include file is listed as well. A more complete description of each include file is given in section 3.10.9. The purpose listed is the one that is in the source code of the include file.

A purpose of "**** PURPOSE NOT FOUND BY STRIPPER ****" indicates that a purpose statement was not written into the include file itself. The most common reason for this is that the include file comes from system libraries that were not developed by the project, such as 'C' libraries that are provided with the 'C' compiler.

See section 3.10.6 for a set of lists which show all the modules which call in each of these include files.

FILE UTILITIES Include File List

File Name	Purpose
ALFABET	LETTERS CONTAINED IN THE ENGLISH ALPHABET
CHKCDM	IISS CDMP CHECK STATUS CODES
ERRCDM	IISS ERROR STATUS CODES FOR CDMP MODULES
ERRPRO	PROCESS ERROR INCLUDE FILE
FNAMES	STORE A GROUP OF FILE NAMES
FSMSG	MESSAGE FOR THE FILE SEND UTILITY
SRVRET	AS THE RETURN GIVEN A TABLE-FULL ERROR
STDRESP	WS DEFINITION FOR STANDARD STATUS VARIABLE

3.10.5 Where Include File Used List

The following lists each include file from 3.10.4 and all the modules documented in this specification which include them. The purpose of each module is listed as well.

FILE UTILITIES Where-include-file-used List

Include File	Module Name	Module Purpose
ALFABET		
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
CHKCDM		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
ERRCDM		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
ERRPRO		
	CDDV1	OPEN CLOSES AND DELETES FILES

FILE UTILITIES Where-include-file-used List

Include File	Module Name	Module Purpose
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
FNAMES		
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
FSMSG		
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
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	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER

FILE UTILITIES Where-include-file-used List

Include File	Module Name	Module Purpose
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
STDRESP		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER

3.10.6 Where External Routine Used List

The following lists each external function or routine listed in 3.10.3 and all the documented modules which call it. The purpose of each module is listed as well.

FILE UTILITIES Where-external-routine-used List

System Module	Module Name	Module Purpose
CDFUNC		
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
ERRPRO		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
FOR$CLOSE		
	FDELET	DELETE THE NAMED FILE
	RCVCLS	CLOSES FILES FOR THE FILE RECEIVE UTILITY
	SNDCLS	CLOSE FILE UNIT 30
FOR$OPEN		
	FDELET	DELETE THE NAMED FILE
	RCVOPN	FILE OPEN ROUTINE FOR FILE RECEIVE UTILITY

FILE UTILITIES Where-external-routine-used List

System Module	Module Name	Module Purpose
	SNDOPN	OPEN FILE "FILNAM" AND SET FILE UNIT TO 30
INITAL		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
INITEX		
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
ISEND		
	CDSF1	FILE SEND FUNCTION
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
NSEND		
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	DELFIL	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
QSEND		
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES

FILE UTILITIES Where-external-routine-used List

System Module	Module Name	Module Purpose
RCV		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
	FILXFR	GENERALIZED INTERFACE TO A FILE TRANSFER
	GENFIL	GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
SIGERR		
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION
TRMNAT		
	CDDV1	OPEN CLOSES AND DELETES FILES
	CDFO1	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	CDFSU	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDRF1	FILE RECEIVE FUNCTION
	CDSF1	FILE SEND FUNCTION

3.10.7 Main Program Parts List

The following lists each Main Program listed in 3.10.1 and all the modules which are called either by that module itself or by any of the documented modules which it calls. It is possible for a non-main module to be listed more that once if it is called by multiple modules. The called modules, in this case known as program parts, are marked as to whether they are documented here. If so, the phrase "well-defined module" appears by the module name, if not it is an "external "routine". The Purpose of the Main Program module is listed as well.

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name	Module Type
CDDV1	Purpose--›	OPEN CLOSES AND DELETES FILES
	ERRPRO	External routine
	FDELET	Well-defined module
	FOR$CLOSE	External routine
	FOR$OPEN	External routine
	INITAL	External routine
	RCV	External routine
	TRMNAT	External routine

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name		Module Type
CDF01		Purpose--›	THIS PROGRAM GENERATES UNIQUE FILE NAMES
	ERRPRO		External routine
	INITAL		External routine
	QSEND		External routine
	RCV		External routine
	TRMNAT		External routine

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name		Module Type
CDFSU		Purpose--›	PROGRAM NAME FILE SEND UTILITY UNIT TEST
	CDFUNC		External routine
	ERRPRO		External routine
	FILXFR		Well-defined module
	INITEX		External routine
	ISEND		External routine
	RCV		External routine
	TRMNAT		External routine

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name	Module Type
CDRF1	Purpose--›	FILE RECEIVE FUNCTION
	CDFUNC	External routine
	ERRPRO	External routine
	FOR$CLOSE	External routine
	FOR$OPEN	External routine
	GENFIL	Well-defined module
	INITAL	External routine
	NSEND	External routine
	RCV	External routine
	RCVCLS	Well-defined module
	RCVDAT	Well-defined module
	RCVOPN	Well-defined module
	SIGERR	External routine
	TRMNAT	External routine

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name	Module Type
CDSF1	Purpose-->	FILE SEND FUNCTION
	CDFUNC	External routine
	ERRPRO	External routine
	FOR$CLOSE	External routine
	FOR$OPEN	External routine
	INITAL	External routine
	ISEND	External routine
	NSEND	External routine
	RCV	External routine
	SIGERR	External routine
	SNDCLS	Well-defined module
	SNDDAT	Well-defined module
	SNDOPN	Well-defined module
	TRMNAT	External routine

FILE UTILITIES Main Program Parts List

Main Pgm Name	Module Name	Module Type
DELFIL	Purpose--›	ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
	CDFUNC	External routine
	ERRPRO	External routine
	FDELET	Well-defined module
	FOR$CLOSE	External routine
	FOR$OPEN	External routine
	NSEND	External routine

3.10.8 Module Documentation

The following documentation describes information which is specific to each individual module being documented in this specification as listed in section 3.10.2. It provides a compact way of getting information that would be otherwise buried within each module's source code.

The specific items in this module documentation have the following meanings:

NAME:	Name of program Module.
PURPOSE:	Purpose of Module as detailed in the source code.
LANGUAGE:	Programming language source code is written in. The choices are: VAX-11 FORTRAN C (I/S-1 Workbench 'C') VAX-11 COBOL
MODULE TYPE:	Whether a Program, Subroutine, or Function.
SOURCE FILE:	Name of Source File from file specification.
SOURCE FILE TYPE:	Source File Extension from file specification.
HOST:	Whether this is a host-dependent routine (VAX or IBM) or blank if host-independent.
SUBSYSTEM:	IISS sub-system this file resides in.
SUBDIRECTORY:	Sub-directory of that subsystem in which this file resides.
DOCUMENTATION GROUP:	Name of documentation group of which this source file is a member.
DESCRIPTION:	A description of the module as otained

from the source code.

ARGUMENTS:	The arguments with which this routine is called if it is a Subroutine or a Function.
INCLUDE FILES:	A list of all the files that are included into this module as well as their purposes.
ROUTINES CALLED:	Subroutines or Functions, either documented or external, called by this module, if any.
CALLED DIRECTLY BY:	The documented routines which call this module, if any.
USED IN MAIN PROGRAM(S):	The documented Main Programs which contain this module in their parts list according to the list in section 3.10.7.

The Module Documentation is arranged alphabetically according to Module Name.

FILE UTILITIES Module Documentation

NAME: CDDV1
PURPOSE: OPEN CLOSES AND DELETES FILES
LANGUAGE: VAX-11 COBOL
MODULE TYPE: PROGRAM
SOURCE FILE: CDDV1
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

-
THIS IS A MAIN PROGRAM WHICH CALLS A
FORTRAN 77 SUBROUTINE TO OPEN AND CLOSE
A FILE BY THE GIVEN NAME AND DELETE IT. THIS IS THE MOST
MACHINE INDEPENDENT METHOD FOR DELETING FILES FOUND.
mod for rel 2.0 standard error handling,
pic 9(5) comp message data length parm.
also, do not need to send a reply back,

-

INCLUDE FILES:

ERRCDM	- IISS ERROR STATUS CODES FOR CDMP MODULES
CHKCDM	- IISS CDMP CHECK STATUS CODES
SRVRET	- AS THE RETURN GIVEN A TABLE-FULL ERROR
STDRESP	- WS DEFINITION FOR STANDARD STATUS VARIABLE
ERRPRO	- PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

FDELET	- DELETE THE NAMED FILE **
ERRPRO	
INITAL	

RCV
TRMNAT

FILE UTILITIES Module Documentation

NAME: CDF01
PURPOSE: THIS PROGRAM GENERATES UNIQUE FILE NAMES
LANGUAGE: VAX-11 COBOL
MODULE TYPE: PROGRAM
SOURCE FILE: CDF01
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

- CDF01 IS A QUEUE SERVER RESIDENT ON ONLY ONE PLACE IN THE TEST BED. WHEN CALLED WITH A HOST ID, IT WILL REPLY WITH THE NEXT FILE NAME TO USE FOR TEMPORARY RESULTS OF QUERY PROCESSORS,AGGREGATORS, AND THE C TO E TRANSFORMS, ETC.

MOD FOR 2.0
SEND OUT MANY FILE NAMES ON 1 REQUEST
WRAP FILE NUMBERS AROUND AND INCREMENT LETTER
SAVE FILE NAMES USED PERIODICALLY ON A
SAVE-FILE

-

INCLUDE FILES:

ERRCDM	- IISS ERROR STATUS CODES FOR CDMP MODULES
CHKCDM	- IISS CDMP CHECK STATUS CODES
FNAMES	- STORE A GROUP OF FILE NAMES
STDRESP	- WS DEFINITION FOR STANDARD STATUS VARIABLE
SRVRET	- AS THE RETURN GIVEN A TABLE-FULL ERROR
ALFABET	- LETTERS CONTAINED IN THE ENGLISH ALPHABET
ERRPRO	- PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

```
----------------
  ERRPRO
  INITAL
  RCV
  QSEND
  TRMNAT
```

FILE UTILITIES Module Documentation

NAME: CDFSU
PURPOSE: PROGRAM NAME FILE SEND UTILITY
UNIT TEST
LANGUAGE: VAX-11 COBOL
MODULE TYPE: PROGRAM
SOURCE FILE: CDFSU
SOURCE FILE TYPE: .COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

- THIS ROUTINE WILL TEST FILE SEND AND RECIEVE UTILITIES, WHICH IN TURN USE FILE NAMER AND FILE DELETER UTILITIES.

-

INCLUDE FILES:

ERRCDM	- IISS ERROR STATUS CODES FOR CDMP MODULES
CHKCDM	- IISS CDMP CHECK STATUS CODES
SRVRET	- AS THE RETURN GIVEN A TABLE-FULL ERROR
ERRPRO	- PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

FILXFR	- GENERALIZED INTERFACE TO A FILE TRANSFER
TRMNAT	
ERRPRO	
INITEX	

FILE UTILITIES Module Documentation

NAME: CDRF1
PURPOSE: FILE RECEIVE FUNCTION
LANGUAGE: VAX-11 COBOL
MODULE TYPE: PROGRAM
SOURCE FILE: CDRF1
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

- THE FILE RECIEVE FUNCTION ACCEPTS FILES FROM FILE SEND FUNCTION. IT RECEIVES FILE CHARACTERISTICS AND OPERATING INSTRUCTIONS FROM THE FILE SEND PROCESS. FILE RECEIVE PASSES COMPLETION INFORMATION TO THE FILE SEND FUNCTION.
mod rel 2.0 - must call "GENFIL" to determine name of results file, use of 9(5) comp data-length
USE STANDARD ERROR HANDLING AND ALLOW FOR RESULTS FILE NAME TO BE BLANK.

-

INCLUDE FILES:

ERRCDM	- IISS ERROR STATUS CODES FOR CDMP MODULES
CHKCDM	- IISS CDMP CHECK STATUS CODES
SRVRET	- AS THE RETURN GIVEN A TABLE-FULL ERROR
FSMSG	- MESSAGE FOR THE FILE SEND UTILITY
STDRESP	- WS DEFINITION FOR STANDARD STATUS VARIABLE
ERRPRO	- PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

INITAL
RCV

SIGERR	
NSEND	
RCVDAT	- RECEIVE ROUITNE FOR FILE RECEVIE UTILITY **
TRMNAT	
ERRPRO	
GENFIL	- GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
RCVOPN	- FILE OPEN ROUTINE FOR FILE RECEIVE UTILITY **
RCVCLS	- CLOSES FILES FOR THE FILE RECEIVE UTILITY **

FILE UTILITIES Module Documentation

NAME: CDSF1
PURPOSE: FILE SEND FUNCTION
LANGUAGE: VAX-11 COBOL
MODULE TYPE: PROGRAM
SOURCE FILE: CDSF1
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

- THE FILE SEND FUNCTION TRANSFERS FILES FROM HOST TO HOST. THE FILE SEND RECEIVES FILE CHARACTERISTICS AND OPERATING INSTRUCTIONS FROM A REQUESTING PROCESS. IT IN TURN PASSES CONTROL INFORMATION TO A FILE RECEIVE FUNCTION.
mod rel 2.0 output file name does not come from the DRS
USE THE "CDFUNC" ROUTINE TO DETERMINE
name of file receive, use 9(5) COMP data lenght

-

INCLUDE FILES:

- CHKCDM - IISS CDMP CHECK STATUS CODES
- ERRCDM - IISS ERROR STATUS CODES FOR CDMP MODULES
- SRVRET - AS THE RETURN GIVEN A TABLE-FULL ERROR
- FSMSG - MESSAGE FOR THE FILE SEND UTILITY
- STDRESP - WS DEFINITION FOR STANDARD STATUS VARIABLE
- ERRPRO - PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

- INITAL
- RCV
- CDFUNC
- ISEND

```
SNDDAT      -  READING THE FILE UNIT 30 INTO BUFFER      **
NSEND
SIGERR
TRMNAT
ERRPRO
SNDOPN      - OPEN FILE "FILNAM" AND SET FILE UNIT TO 30 **
SNDCLS      -  CLOSE FILE UNIT 30                        **
```

FILE UTILITIES Module Documentation

NAME: DELFIL
PURPOSE: ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.
LANGUAGE: VAX-11 COBOL
MODULE TYPE: SUBROUTINE
SOURCE FILE: DELFIL
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

-
THE PURPOSE OF THIS ROUTINE IS TO ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM ON THE APPROPRIATE HOST.
MOD FOR RELEASE 2.0 : USE CDFUNC ROUTINE.

DON'T WAIT FOR A REPLY FRO Q-SERVER.
. if request is on host, use fdelet directly
. use standard error handling
. IF HOST INPUT IS BLANK, USE CURRENT HOST AND RETURN IT TO THE CALLER.

ARGUMENTS:

FILE-HOST = DSPLY [XXX]
OLD-FILE-NAME = DSPLY [X(30)]

INCLUDE FILES:

CHKCDM - IISS CDMP CHECK STATUS CODES
ERRCDM - IISS ERROR STATUS CODES FOR CDMP MODULES
STDRESP - WS DEFINITION FOR STANDARD STATUS VARIABLE
SRVRET - AS THE RETURN GIVEN A TABLE-FULL ERROR
ERRPRO - PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

FDELET	- DELETE THE NAMED FILE	**
CDFUNC		
NSEND		
ERRPRO		

FILE UTILITIES Module Documentation

NAME: FDELET
PURPOSE: DELETE THE NAMED FILE
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: FDELET
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

FNAME = CHAR
IOSTA = I*4

ROUTINES CALLED:

FOR$CLOSE
FOR$OPEN

CALLED DIRECTLY BY:

CDDV1 - OPEN CLOSES AND DELETES FILES
DELFIL - ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.

USED IN MAIN PROGRAM(S):

CDDV1 - OPEN CLOSES AND DELETES FILES
DELFIL - ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE PROGRAM.

FILE UTILITIES Module Documentation

NAME: FILXFR
PURPOSE: GENERALIZED INTERFACE TO A FILE TRANSFER
LANGUAGE: VAX-11 COBOL
MODULE TYPE: SUBROUTINE
SOURCE FILE: FILXFR
SOURCE FILE TYPE: .COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

- THIS ROUTINE WILL ACCEPT USER INPUTS AND DETERMINE THE CORRECT FILE SEND TO INTERFACE WITH. IT IS ASSUMED THE FILE TO BE TRANSFERRED IS ON HOST.

-

FIRST LOOK UP THE NAME OF THE FILE SENDER ON THIS HOST, THEN SET UP THE INPUT MESSAGE TO THE FILE SENDER. IF THE USER DID NOT WANT TO WAIT, RETURN. IF HE DID WAIT FOR THE REPLY AND RETURN THE RET-STATUS.

ARGUMENTS:

SOURCE-HOST = DSPLY [XXX]
SOURCE-FILE = DSPLY [X(30)]
FILE-REC-SIZE = DSPLY [S9(5)]
DEST-HOST = DSPLY [XXX]
WAIT-FLAG = DSPLY [9]
BINARY-NATIVE-FLAG = DSPLY [X]
DESTINATION-FILE = DSPLY [X(30)]
RECS-SENT = DSPLY [9(6)]
RET-STATUS = DSPLY [X(5)]

INCLUDE FILES:

SRVRET - AS THE RETURN GIVEN A TABLE-FULL ERROR
ERRCDM - IISS ERROR STATUS CODES FOR CDMP MODULES

```
  CHKCDM      - IISS CDMP CHECK STATUS CODES
  FSMSG       - MESSAGE FOR THE FILE SEND UTILITY
  STDRESP     - WS DEFINITION FOR STANDARD STATUS VARIABLE
  ERRPRO      - PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:
----------------
  CDFUNC
  ISEND
  RCV
  ERRPRO


CALLED DIRECTLY BY:
-------------------
  CDFSU       - PROGRAM NAME        FILE SEND UTILITY UNIT TEST

USED IN MAIN PROGRAM(S):
------------------------
  CDFSU       - PROGRAM NAME        FILE SEND UTILITY UNIT TEST
```

FILE UTILITIES Module Documentation

NAME: GENFIL
PURPOSE: GENERALIZED INTERFACE TO THE FILE NAME QUEUE SERVER
LANGUAGE: VAX-11 COBOL
MODULE TYPE: SUBROUTINE
SOURCE FILE: GENFIL
SOURCE FILE TYPE: .COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

-
THE PURPOSE OF THIS ROUTINE IS TO ACT AS A
GENERALIZED INTERFACE TO THE FILE NAME
QUEUE SERVER.
mod for release 2.0 to return a ret-status
ALSO WILL USE CDFUNC TO DETERMINE AP.
WILL ASK FOR AND RECEIVE A BLOCK OF 20 NAMES
AND HAND THEM OUT TO A CALLER 1 AT A TIME.
IF INUT-HOST NAME IS BLANK, THEN USE THE
CURRENT HOST AND PASS IT BACK TO THE CALLER.

ARGUMENTS:

FILE-HOST = DSPLY [XXX]
NEW-FILE-NAME = DSPLY [X(30)]
RET-STATUS = DSPLY [X(5)]

INCLUDE FILES:

FNAMES - STORE A GROUP OF FILE NAMES
CHKCDM - IISS CDMP CHECK STATUS CODES
ERRCDM - IISS ERROR STATUS CODES FOR CDMP MODULES
STDRESP - WS DEFINITION FOR STANDARD STATUS VARIABLE
SRVRET - AS THE RETURN GIVEN A TABLE-FULL ERROR
ERRPRO - PROCESS ERROR INCLUDE FILE

ROUTINES CALLED:

CDFUNC
NSEND
RCV
ERRPRO

CALLED DIRECTLY BY:

CDRF1 - FILE RECEIVE FUNCTION

USED IN MAIN PROGRAM(S):

CDRF1 - FILE RECEIVE FUNCTION

FILE UTILITIES Module Documentation

NAME: RCVCLS
PURPOSE: CLOSES FILES FOR THE FILE RECEIVE UTILITY
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: RCVCLS
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

FILNAM = CHAR
CLSTAT = CHAR
IOS = I*4

ROUTINES CALLED:

FOR$CLOSE

CALLED DIRECTLY BY:

CDRF1 - FILE RECEIVE FUNCTION

USED IN MAIN PROGRAM(S):

CDRF1 - FILE RECEIVE FUNCTION

FILE UTILITIES Module Documentation

NAME: RCVDAT
PURPOSE: RECEIVE ROUITNE FOR FILE RECEVIE UTILITY
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: RCVDAT
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

SNDATA = CHAR
NUMREC = I*4
RECLEN = I*4
RECSWR = I*4
WRERR = I*4

CALLED DIRECTLY BY:

CDRF1 - FILE RECEIVE FUNCTION

USED IN MAIN PROGRAM(S):

CDRF1 - FILE RECEIVE FUNCTION

FILE UTILITIES Module Documentation

NAME: RCVOPN
PURPOSE: FILE OPEN ROUTINE FOR FILE RECEIVE UTILITY
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: RCVOPN
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

FILNAM = CHAR
IOS = I*4
RECLEN = I*4

ROUTINES CALLED:

FOR$OPEN

CALLED DIRECTLY BY:

CDRF1 - FILE RECEIVE FUNCTION

USED IN MAIN PROGRAM(S):

CDRF1 - FILE RECEIVE FUNCTION

FILE UTILITIES Module Documentation

NAME: SNDCLS
PURPOSE: CLOSE FILE UNIT 30
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: SNDCLS
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

FILNAM = CHAR
IOS = I*4

ROUTINES CALLED:

FOR$CLOSE

CALLED DIRECTLY BY:

CDSF1 - FILE SEND FUNCTION

USED IN MAIN PROGRAM(S):

CDSF1 - FILE SEND FUNCTION

FILE UTILITIES Module Documentation

NAME: SNDDAT
PURPOSE: READING THE FILE UNIT 30 INTO BUFFER
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: SNDDAT
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

SNDATA = CHAR
RECLEN = I*4
RECSRD = I*4
BUFLEN = I*4
RDERR = I*4
EOF = I*4

CALLED DIRECTLY BY:

CDSF1 - FILE SEND FUNCTION

USED IN MAIN PROGRAM(S):

CDSF1 - FILE SEND FUNCTION

FILE UTILITIES Module Documentation

NAME: SNDOPN
PURPOSE: OPEN FILE "FILNAM" AND SET FILE UNIT TO 30
LANGUAGE: VAX-11 FORTRAN
MODULE TYPE: SUBROUTINE
SOURCE FILE: SNDOPN
SOURCE FILE TYPE: .FOR
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY:
DOCUMENTATION GROUP: PS41330

DESCRIPTION:

ARGUMENTS:

FILNAM = CHAR
IOS = I*4
RECLEN = I*4

ROUTINES CALLED:

FOR$OPEN

CALLED DIRECTLY BY:

CDSF1 - FILE SEND FUNCTION

USED IN MAIN PROGRAM(S):

CDSF1 - FILE SEND FUNCTION

3.10.9 Include File Descriptions

The following list contains a purpose and description of each include file listed in 3.10.4 as specified in the source code. The language it is written in is also given.

FILE UTILITIES Include File Description

FILE NAME: ALFABET
PURPOSE: LETTERS CONTAINED IN THE ENGLISH ALPHABET
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS IS THE ENGLISH ALPHABET, THE LETTERS ARE USED FOR ASSIGNING THE NEXT UNIQUE NAME WHEN THE NUMBERS RUN OUT.

ALFABET.INC

FILE UTILITIES Include File Description

FILE NAME: CHKCDM
PURPOSE: IISS CDMP CHECK STATUS CODES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL STATUS CODES FOR THE
CDMP MODULES

FILE UTILITIES Include File Description

FILE NAME: ERRCDM
PURPOSE: IISS ERROR STATUS CODES FOR CDMP MODULES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

FILE UTILITIES Include File Description

FILE NAME: ERRPRO
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

FILE UTILITIES Include File Description

FILE NAME: FNAMES
PURPOSE: STORE A GROUP OF FILE NAMES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS UNIQUE FILE NAMES USED DURING PRECOMPILATION

FNAMES.INC

STORE A GROUP OF UNIQUE FILE NAMES

FILE UTILITIES Include File Description

FILE NAME: FSMSG
PURPOSE: MESSAGE FOR THE FILE SEND UTILITY
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

MESSAGE FORMAT FOR THE FILE SEND INPUT

FILE UTILITIES Include File Description

FILE NAME: SRVRET
PURPOSE: AS THE RETURN GIVEN A TABLE-FULL ERROR
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

MODIFIED 11/2/83 TO INCLUDE RET-CODE-5 *
MODIFIED 1/9/84 TO INCREASE ALL ERROR CODES TO PIC X(5) *

FILE UTILITIES Include File Description

FILE NAME: STDRESP
PURPOSE: WS DEFINITION FOR STANDARD STATUS VARIABLE
LANGUAGE: VAX-11 COBOL

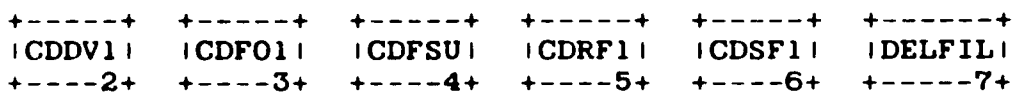
DESCRIPTION:

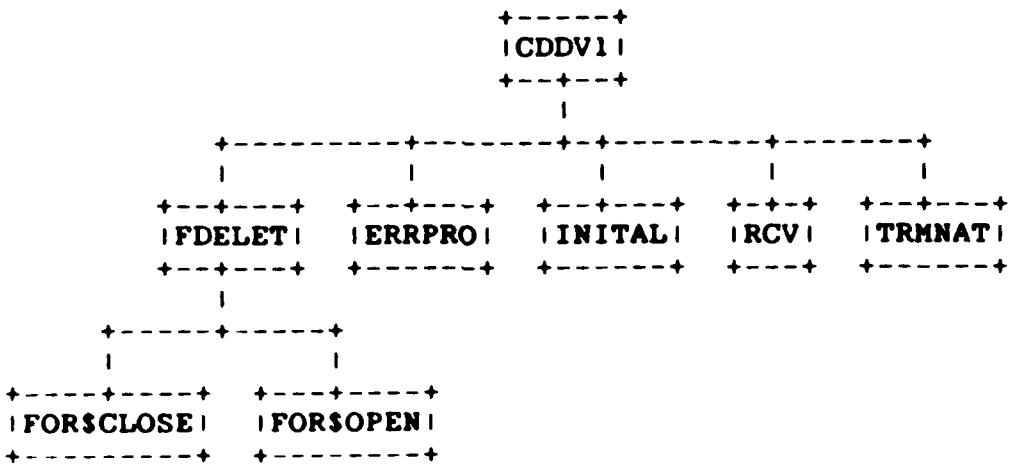
THE STANDARD 'PROCESS COMPLETE' MESSAGE

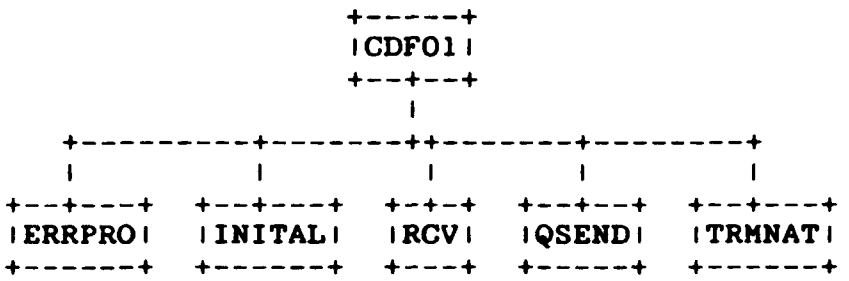
3.10.10 Hierarchy Chart

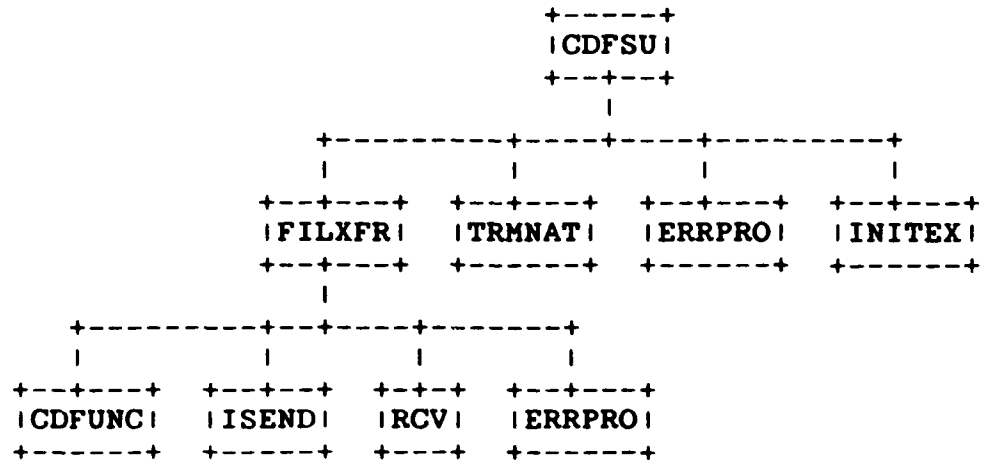
The following hierarchy charts show the relationships between all of the modules mentioned in the above documentation. A module may call a subroutine several times within its code, but the call will only be shown once as a single relationship on this hierarchy chart. All modules shown at the top of the first page are considered Main Programs as described in section 3.10.1 above.

There is an internal paging scheme as marked by the numbers in the upper right corner of each page. An index after the last page of the chart shows where a routine and its calls are first defined. If a routine has no page reference, it either makes no calls or is an external routine. A continuation box on the end of a tree limb shows where that the tree continues on the page numbered mentioned. A number in a box with a routine name points to the page where the routine is further defined within the hierarchy tree. If there is no number in a box, the routine either makes no calls or is an external routine.

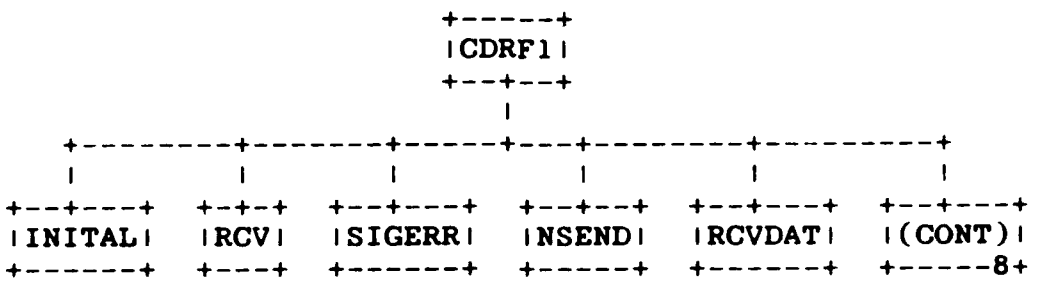

CDDV1
CDFO1
CDFSU
CDRF1
CDSF1
DELFIL
2
3
4
5
6
7


CDDV1
FDELET
ERRPRO
INITAL
RCV
TRMNAT
FOR$CLOSE
FOR$OPEN

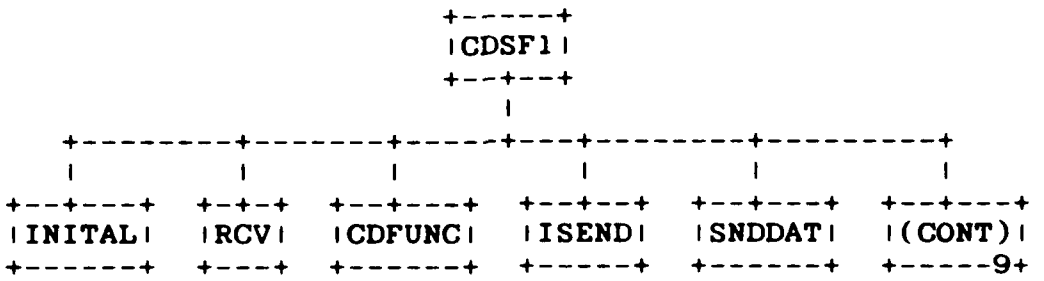

CDF01
ERRPRO
INITAL
RCV
QSEND
TRMNAT


CDFSU
FILXFR
TRMNAT
ERRPRO
INITEX
CDFUNC
ISEND
RCV
ERRPRO

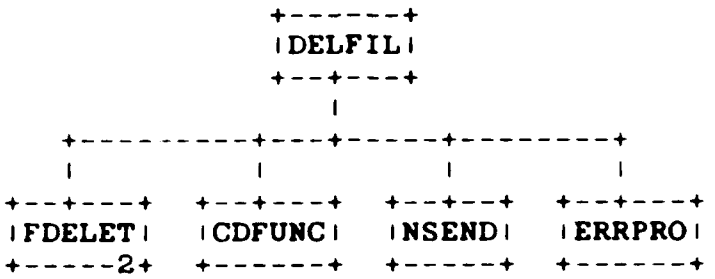
5

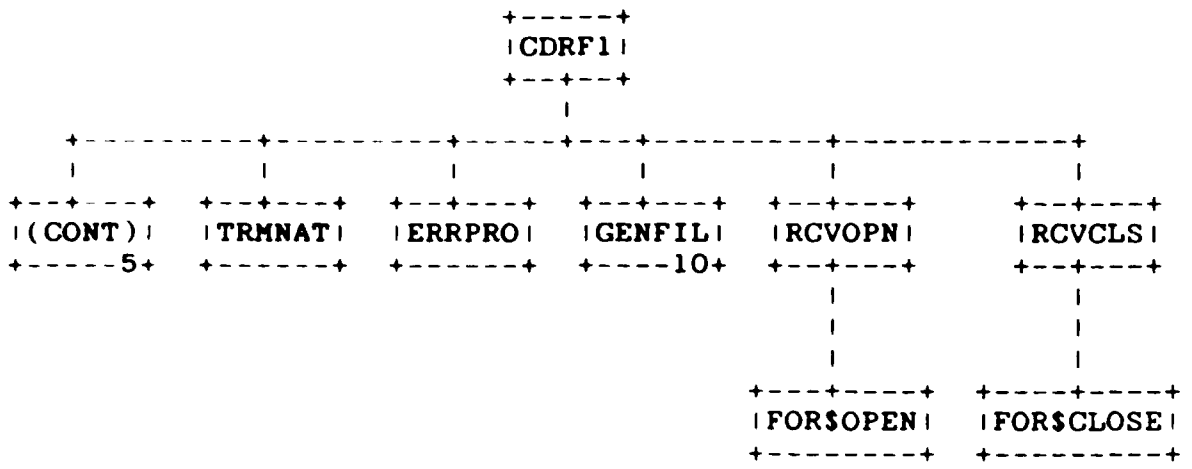


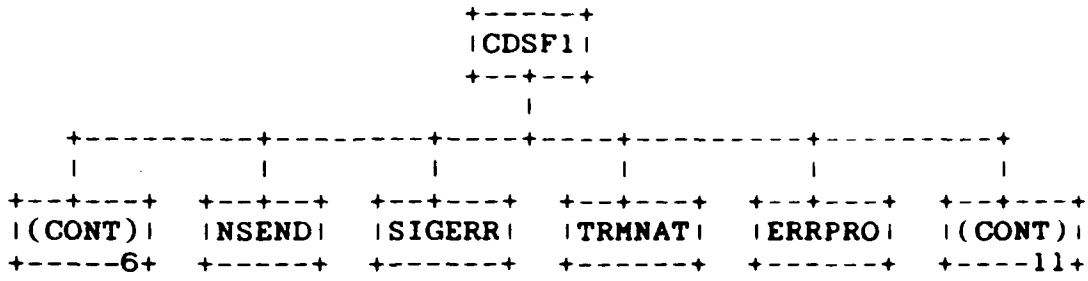
6



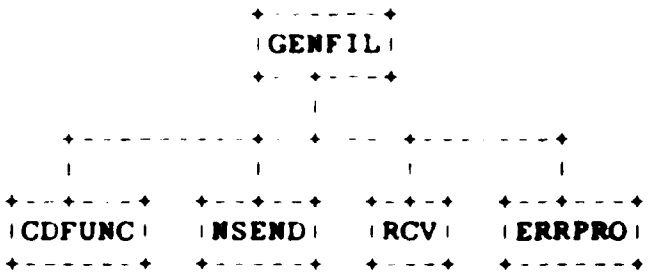
7

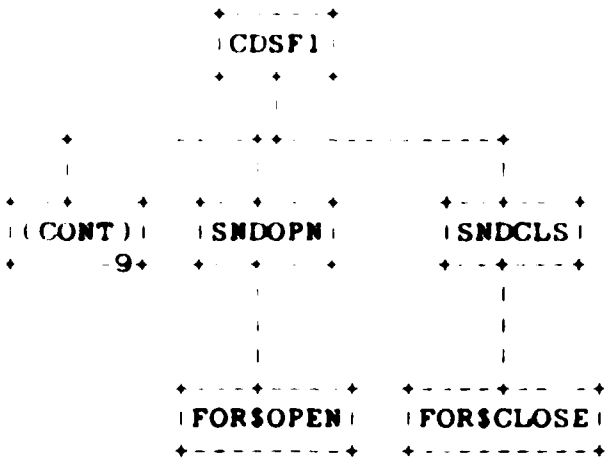



CDRF1
(CONT)
5
TRMNAT
ERRPRO
GENFIL
10
RCVOPN
RCVCLS
FOR$OPEN
FOR$CLOSE


CDSF1
(CONT)
6
NSEND
SIGERR
TRMNAT
ERRPRO
(CONT)
11

10




CDSF1
CONT
9
SNDOPN
SNDCLS
FOR$OPEN
FOR$CLOSE

CDDV1.....2
CDFO1.....3
CDFSU.....4
CDFUNC
CDRF1.....5
CDSF1.....6
DELFIL.....7
ERRPRO
FDELET.....2
FILXFR.....4
FOR$CLOSE
FOR$OPEN
GENFIL.....10
INITAL
INITEX
ISEND
NSEND
QSEND
RCV
RCVCLS.....8
RCVDAT
RCVOPN.....8
SIGERR
SNDCLS.....11
SNDDAT
SNDOPN.....11
TRMNAT

3.11 Program Listings Comments

This information is contained in the Module Descriptions in section 3.10.

SECTION 4

QUALITY ASSURANCE PROVISIONS

4.1 Introduction and Definitions

"Testing" is a systematic process that may be preplanned and explicitly stated. Test techniques and procedures may be defined in advance, and a sequence of test steps may be specified. "Debugging" is the process of isolation and correction of the cause of an error.

"Antibugging" is defined as the philosophy of writing programs in such a way as to make bugs less likely to occur and when they do occur, to make them more noticeable to the programmer and the user. In other words, as much error checking as is practical and possible in each routine should be performed.

4.2 Computer Programming Test and Evaluation

The quality assurance provisions for test consists of the normal testing techniques that are accomplished during the construction process. They consist of design and code walk-throughs, unit testing, and integration testing. These tests are performed by the design team. Structured design, design walk-through and the incorporation of "antibugging" facilitate this testing by exposing and addressing problem areas before they become coded "bugs."

END

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